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TEXTILE CLOTH FOR WIPING FLOORS

The present invention relates to a textile cloth for wiping floors that is made of a textile material with bending softness and can be fixed in a detachable manner on a tentering frame of a manual cleaning device, whereby the cloth for wiping floors projects at least partly sideways beyond the surface where it is held on the tentering frame, and is reinforced in these edge areas.

Floor cleaning devices that can be handled by hand for cleaning floors and possibly walls in wet and dry ways, and where a tentering frame is mounted in front on the handling bar, are known in a multitude of different designs. A textile cloth serving as the actual cleaning element can be mounted on said tentering frame. As a rule, such a textile cloth is secured by means of flaps of the tentering frame, which can be spread or folded open. These flaps engage corresponding pockets or tabs provided on the cloth for wiping floors. Such designs offer the basic benefit that the wiping cloth can be easily replaced.

The cloth for wiping floors is clamped onto the clamping or holding surface of the tentering frame, the latter being directed downwards, in such a way that the cleaning side of the textile cloth actively doing the cleaning work is directed outwards, i.e. it is directed downwards as well.

For the purpose of enlarging the active surface area, changes have been made to the extent that the surface area of the cloth for wiping floors is made larger than the surface area on which the tenting frame is held, i.e., the wiping cloth is mounted either extending all around, or partially protrudes sideways beyond the outer edge of the tenting frame.

The cleaning effect of such a wiping device is the better the more even the contact is over the entire active surface of the cleaning side of the wiping cloth with the surface of the floor to be cleaned. For this purpose, when surfaces of floors or walls are cleaned, the wiping cloth should always fully rest on the surface to be cleaned, and should be capable of bending without throwing folds when it is pressed harder to the surface to be cleaned for removing tough spots of dirt. While this requirement is satisfied without problems in the area where the tenting frame is smoothly clamped taut, the stability required in the protruding edge areas of the wiping cloth that are not supported is not assured for the most part. It has been proposed in the prior art according to EP 0 630 606 B1 that a reinforcement should be incorporated in the wiping cloth in the form of a cord- or wire-like material. The wiping cloth known from said prior art, however, still has outwardly protruding edge zones that are not reinforced, on the one hand. On the other hand, such a reinforcement only serves for increasing the

bending stiffness of the line-shaped outer edge, but does not stiffen the area of the projecting zone protruding crosswise in relation to the outer edge. As an alternative measure for obtaining a reinforcement, it is known from EP 0 664 100 A1 to fold the edges of the cloth for wiping floors over and onto the upper side, and to secure the edges there by sewing or by gluing them to the upper side. However, the textile material of the wiping cloth is relatively soft or slag within itself in terms of its bending property for assuring a good cleaning effect. Therefore, the substantially line-shaped seams or glued seams in turn will in any case only lead to increasing the dimensional stability in the direction of the seam, i.e. achieve such stability only in the direction of the edges. In the transverse direction, however, where experience has shown that the tendency to undesirable bending or throwing of folds will particularly occur due to the forces occurring in the wiping process, the dimensional stability is not adequate. Even the textile material mounted there in a double layer will exhibit only low inherent stiffness within the zone of its outer edges.

In view of said problems, the present invention is based on the problem of providing a textile wiping cloth for wiping floors that incorporates the features specified above. In its protruding edge zones that project sideways beyond the surface of the tenting frame that is holding

the wiping cloth. Such a wiping cloth has enhanced inherent stiffness and dimensional stability, notably both in the direction of the edge and transversely to said direction as well.

For solving said problem, the invention proposes that at least partly flat stiffening strips are attached in a fixed manner to the textile material along the edge areas.

The stiffening strips as defined by the invention are forming flat reinforcement elements that are fixed on the back side of the floor wiping cloth in the edge areas projecting beyond the holding surface of the tenting frame.

A special advantage of the embodiment as defined by the invention lies in that the textile material of the cloth for wiping floors, which is inherently soft in terms of its bending property, is flatly supported by the reinforcing strips, i.e. its rigidity when bent is increased both lengthwise and crosswise in relation to the expanse of the edges. As opposed to the line-shaped reinforcements known until now in the form of seams or bars, the edge zones are thus provided over the expanse of their area with increased inherent stability and dimensional stability for the first time.

The raised bending stiffness is substantially determined by the mechanical properties of the reinforcing strips. The textile material can be consequently optimized in a particularly advantageous way with respect to its cleaning parameters such as surface structure, power of absorption or other parameters, without having to accept any compromise with respect to its mechanical stability. This aspect is of special importance to the extent that a certain conflict exists in this regard between the objectives to be achieved with the reinforcing methods known in the prior art: on the one hand, the textile material of the cloth for wiping floors is expected to be relatively soft in terms of bending, so that it can be folded over once or a number of times along the edges and fixed by sewing. On the other hand, however, it is expected to be dimensionally stable to the greatest possible extent, so that the edges will be flatly attached and cannot be bent or throw folds. For the aforementioned reasons, the present invention permits for the first time a conclusive and consequent statement of a solution.

The reinforcing strips are preferentially approximately as wide as the edge areas. The latter are fully supported in this way over their surface area across their entire width. If the reinforcing strips extend over the length of the edge areas, i.e. in a through-extending manner along an edge, or

also over the entire outer edge, the bending stiffness is optimized in that direction as well.

As an alternative, it is, of course, conceivable also to attach reinforcing strips only to individual edge areas or by sections. In this way, it is possible, for example to realize special edge or corner reinforcements.

Preferentially, the reinforcement strips have a higher bending rigidity than the textile material of the wiping cloth. This dimensional stability of the reinforcement strips can be predetermined practically without any restrictions by selecting materials with lesser mechanical flexibility and/or by selecting suitable dimensions, for example with respect to the thickness of the material.

For example, the reinforcement strips may consist of a textile material. This material should be, for example a fabric or nonwoven material with harder and/or thicker threads than those of the wiping cloth, so that such a material will have a higher inherent stiffness. Plastic fabrics, which are proof to rotting, are well-suited for this purpose as well.

Alternatively, the reinforcing strips can be made of a felt material. Suitable felt materials are available with material thickness values of a few millimeters and exhibit good dimensional stability especially as their thickness

increases. Yet such materials nonetheless have an inherent damping effect, so that the risk of damaging furniture or foot ledges is reduced when such a wiping cloth is used for wiping floors. Furthermore, the felt can be produced and processed in easy ways, for example sewn; it is proof to rotting, and it exhibits absorptive power and stores moisture to a certain extent. This may be entirely beneficial for certain cleaning applications. Furthermore, the fully impregnated felt material has an increased inherent weight, which causes the edges to be fully and flatly pressed against the surface of the floor.

According to another alternative, the reinforcing strips are made of a plastic foil material. Such a plastic foil possesses good elasticity when subjected to bending, and good dimensional stability, as a rule, even when it has a relatively low thickness. This means, furthermore, that the wiping cloth will be only insignificantly thicker in the edge areas even when provided with the reinforcing insert as defined by the invention.

The dimensional stability and the bending stiffness of the reinforcement strips as defined by the invention can be raised further by equipping such strips with reinforcing ribs. Such reinforcing ribs are formed, for example by bridges extending in the longitudinal and/or transverse directions, or in a crossed way, and can be joined with the

basic material of the reinforcing strips or shaped on the latter by molding. For example, strips of felt can be equipped with plastic ribs, or strips made of plastic foil material can be provided with ribs molded onto the strips, or with stiffening corrugations shaped on the plastic foil material. One advantage offered by such reinforcing ribs is that the bending stiffness can be raised with only minor additional material expenditure in individual areas as required.

For securing the stiffening ribs, it is possible to glue or sew them to the textile material of the wiping cloth. Owing to the dimensional stability of the stiffening ribs it will suffice if point- or line-like connections between the strips and the textile material are produced, so that these reinforcing ribs are safely secured and cannot slip. It is possible also, of course, to flatly glue or sew them to the textile material a number of times in order to produce a safe bond. It is conceivable also, furthermore, to select other connection possibilities.

Furthermore, it is advantageous if the textile material of the floor wiping cloth is folded over upwards around the reinforcing strips. In this way, it will be assured that the cloth for wiping floors has a surface that is actively cleaning along its edges as well. Moreover, the reinforcing strips are safely framed in this way and frazzling of the



textile material is safely excluded along the edges without any additional hemming of the latter.

According to a particularly advantageous possibility for securing the reinforcing strips on the textile material, provision is made that the textile material is fastened on its outer edge on the edge of the reinforcing strip with its cleaning side, and that the reinforcing strip is folded over backwards and then secured on the back side of the textile material. Such a way of securing the reinforcing strip offers the special advantage that the stiffening strip is particularly safely fixed in the edge zone of the cloth for wiping floors, and the connection seam is thus completely covered at the same time and protected in this way against damage of any kind.

The textile material preferentially consists of a carrier fabric, to which fibers that are actively cleaning are attached on the cleaning side. While the carrier fabric may consist of, for example a hard-wearing material with a long useful life, whereas a cleaning velvet-type material consisting of, for example so-called micro-fibers or the like that has a particularly good cleaning effect, is attached to the cleaning side.

The wiping cloth is usefully provided with an about rectangular cut.

An exemplified embodiment of the invention is explained in greater detail in the following with the help of the drawing, in which:

FIG. 1 shows a cross section through a first embodiment of the cloth for wiping floors as defined by the invention.

FIG. 2 is a sectional view with a cut through a second embodiment of a cloth for wiping floors as defined by the invention.

FIG. 3 is a schematic top view of a cloth for wiping floors as defined by the invention; and

FIGS. 4, 5 and 6 show other embodiments of cloths for wiping floors as defined by the invention, shown by schematic top views as in FIG. 3.

In all representations according to FIGS. 1 to 6, the same reference numerals are used in the following if they pertain to the same components.

FIGS. 1 and 2 show cross sections through the edge area of a cloth 1 for wiping floors as defined by the invention, which is mounted on a (partly indicated) tenting frame.

The cloth 1 for wiping floors consists of a cut from a relatively bending-soft textile material 3 that is provided on its cleaning side with a cleaning velvet 3a.

In the edge area shown, a reinforcing strip 4 as defined by the invention is attached to the backside of the textile material 3. In the embodiment shown, said reinforcing strip consists of, for example a flat ribbon of felt.

In the embodiment according to FIG. 1, the textile material is folded over upwards around the outer edge of the reinforcing strip 4 and fixed in the area of the inner edge of the reinforcing strip by means of the through-extending seams 5.

In the embodiment according to FIG. 2, the textile material 3 is first sewn to or interlinked with its outer edge on its cleaning side with the edge of the reinforcing strip 4 by means of the seams 5a. The reinforcing strip 4 is then folded over to the back and, by means of the seams 5 disposed on the inner side, secured again on the back side of the textile material 3. In the examples shown, the reinforcing strip 4 is extending across the entire width of the edge area by which the floor-wiping cloth projects beyond the tenting frame 2 sideways. The entire width of the edge area is reinforced in this way over its entire area.

The inner edge of the reinforcing strip 4 practically abuts the outer edge of the tenting frame 2. In this way, the edge area is prevented from being folded up around the inner edge of the reinforcing strip 4. As opposed to a reinforcement by means of seams, in which case the edge areas could flap over to the top in an undesirable way, the reinforcing strip 4 as defined by the invention offers a through-extending reinforcement reaching beyond the holding surface of the tenting frame 2 up to the outer edge.

As an alternative, the reinforcing strip 4 may consist of plastic foil material or other materials that are stiff under bending. For securing this foil material, provision can be made alternatively or additionally for gluing it to the textile material 3.

The representations in FIGS. 3 to 6 show top views of a floor wiping cloth 1 as defined by the invention and shown in FIGS. 1 and 2. These representations clearly show the versatility available for attaching the reinforcing strips 4 as defined by the invention. The reinforcing strips are indicated for that purpose in their installed positions by the shaded areas.

In detail, the transverse edges of the floor wiping cloth 1 (FIG. 3) or the longitudinal edges (FIG. 4) may be

reinforced. Furthermore, a reinforcement of the corners is possible (FIG. 5). Finally, it is conceivable to provide the entire edge area with the reinforcing strips 4 as defined by the invention, which are extending all around (FIG. 6). Said reinforcing strips 4 may be formed either by individual strips or in the form of one single piece.

In all embodiments, the reinforcing strips 4 made of felt offer the advantage especially in wet cleaning operations that they get fully impregnated with water and will thus be provided with a higher inherent weight. This causes the edge area to rest particularly intimately against the surface of the floor as the latter is being wiped.

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